

SEQUENCE LISTING

<110> Cedars-Sinai Medical Center

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<120> Mutations in NOD2 are Associated with
Fibrostenosing Disease in Patients with Crohn's Disease

<130> 66783-152

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<141> 2003-07-30

<150> US 60/407,391

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<150> US 10/356,736

<151> 2003-01-30

<160> 67

<170> FastSEQ for Windows Version 4.0

<210> 1

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<212> DNA

<213> Homo sapiens

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cattttgcag tgtgggcccc actgagtgtg ctgccctggc ctttgtgctg cagcacctcc 360
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<212> DNA

<213> Homo sapiens

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<212> DNA
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<210> 4
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<213> Homo sapiens

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<210> 5
<211> 541
<212> DNA
<213> Homo sapiens

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aaaattctgc cattcctctc tcccgtcacc ccattttaca gatagaaaaa ctgaggttcg 180
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gagagctaaa acaggcctgc ccaggggcct taccagactt ccaggatggg gtcatttcctt 240
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ctgctcatgt ctgagattcc caatgagctc atcaacaaag gctcagtacc atcagtgaag 480
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 <213> Homo sapiens

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gcaagtgcag ccgctgcagg agcgtgctct tgccactgcc cgccctaccc accaccagca 180
cagtgctccg atcgctcatt aggtggccag ggggtgctgaa gagctcctcc aggcccaggg 240
tggctgggct cttctgcggg ggtccagcca tgcccacatc tgcccagacc tccaggacat 300
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gagactgagc agacaccgtg gtccctcagc tggccatata cttcttgcat gtggcagctg 420
gaaggcagaa gaagaggcag atgaaggtgg caccatgggt aagacgggac ctaaccagac 480
aatgggctgc tgcggggggac gctgacataa ctgaagggat aggagagcca gcgggcgccc 540

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<210> 8
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 <212> DNA
 <213> Homo sapiens

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cagctgccac atgcaagaag tatatggcca agctgaggac cacgggtgtc gctcagctctc 180
gttctctcag tacctatgat ggagcagaga cgctctgcct ggaggacata tacacagaga 240
atgtcctgga ggtctgggca gatgtgggca tggctggacc cccgcagaag agcccagcca 300

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ccctgggcct ggaggagctc ttcagcacc cttggccacct caatgacgat ggggacactg 360
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tgtgggctgc agggcaagac ttccaggaat ttctctttgt cttccattc agctgccggc 480
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<210> 9
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 <213> Homo sapiens

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<210> 10
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<400> 10
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aaggaccaat tccaatccat tggtagtggg tgcccagtgc 520

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 <212> DNA
 <213> Homo sapiens

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<400> 11
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ggccaagagc aaatgctttg cttaagtgtc gaaatctcag cccactgacc ccttgagagc 480
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<210> 12
<211> 496
<212> DNA
<213> Homo sapiens

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<210> 13
<211> 488
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> 434
<223> n = A,T,C or G

<400> 13
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agtctctg 488

<210> 14
<211> 491
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> 437
<223> n = A,T,C or G

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cctggtcggg cttccctctc tcaggcgaaa tctgtcagtc tatctgcatt gccttttgat 180
ctctacttca gttactacaa cttcaaagac accattgtcc tccccaaggt gaggcccatg 240

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agcccggttt ctctggggcc aagagcaaat gctttgctta agtgctgaaa tctcagccca 420
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ctgagtctct g 491
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<210> 15
<211> 491
<212> DNA
<213> Homo sapiens

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ctgagtctct g 491
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<210> 16
<211> 491
<212> DNA
<213> Homo sapiens

<220>
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<222> 437
<223> n = A,T,C or G

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<210> 17
<211> 491
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> 159
<223> n = A,T,C or G

<400> 17

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cctggtcggg cttccctctc tcaggcgaaa tctgtcagnc tatctgcatt gccttttgat 180
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ctgagtctct g 491
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<210> 18

<211> 487

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> 433

<223> n = A,T,C or G

<400> 18

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cggtttctct ggggcccaaga gcaaatgctt tgcttaagtg ctgaaatctc agccactga 420
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gtctctg 487
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<210> 19

<211> 486

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> 432

<223> n = A,T,C or G

<400> 19

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aaaccaggc ccaggcctga gcctggacac ctcccttccct cctgagacca cagccagccc 360
ggtttctctg gggccaagag caaatgcttt gcttaagtgc tgaaatctca gccactgac 420
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tctctg 486
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<210> 20
<211> 484
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> 430
<223> n = A,T,C or G

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gggcttcccc tcttcaggcg aaatctgtca gtctatctgc attgcctttt gatctctact 180
tcagttacta caacttcaaa gacaccattg tcctcccaa ggtgaggccc atgtagagaa 240
aggatcactt ccttgctgaa agagaggggc aaggggagac ccacgtgggc cctccctgaa 300
accaggccc aggcctgagc ctggacacct ccttccttcc tgagaccaca gccagcccgg 360
tttctctggg gccaagagca aatgctttgc ttaagtgtg aaatctcagc ccactgacct 420
cttgacagc ggagaggagg ggaagcccag ggaagctcaa cttcccaagt gtctgagtc 480
tctg 484

<210> 21
<211> 485
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> 431
<223> n = A,T,C or G

<400> 21
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cgggcttccc ctcttcaggc gaaatctgtc agtctatctg cattgccttt tgatctctac 180
ttcagttact acaacttcaa agacaccatt gtcctcccaa aggtgaggcc catgtagaga 240
aaggatcact tccttgctga aagagagggc caaggggaga ccacgtggg cctccctga 300
aaccaggccc caggcctgag cctggacacc tccttccttc ctgagaccac agccagcccg 360
gtttctctgg ggccaagagc aaatgctttg cttaagtgtc gaaatctcag ccactgacc 420
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ctctg 485

<210> 22
<211> 488
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> 434
<223> n = A,T,C or G

<400> 22


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ggtcgggctt cccctcttca ggcgaaatct gtcagtctat ctgcattgcc ttttgatctc 180
tacttcagtt actacaactt caaagacacc attgtcctcc ccaaggtgag gcccatgtag 240
agaaaggatc acttccttgc tgaaagagag ggtcaagggg cgaccacgt gggccctccc 300
tgaaaccag gccaggcct gagcctggac acctccttcc ttctgagac cacagccagc 360
ccggtttctc tggggccaag agcaaagtct ttgcttaagt gctgaaatct cagccactg 420
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agtctctg 488
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<210> 23

<211> 488

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> 434

<223> n = A,T,C or G

<400> 23

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tacttcagtt actacaactt caaagacacc attgtcctcc ccaaggtgag gcccatgtag 240
agaaaggatc acttccttgc tgaaagagag ggtcaagggg cgaccacgt gggccctccc 300
tgaaaccag gccaggcct gagcctggac acctccttcc ttctgagac cacagccagc 360
ccggtttctc tggggccaag agcaaagtct ttgcttaagt gctgaaatct cagccactg 420
acccttgca gacnggagag gaggggaagc ccagggaagc tcaacttccc aagtgtcctg 480
agtctctg 488
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<210> 24

<211> 497

<212> DNA

<213> Homo sapiens

<400> 24

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tcactaggct tctggttgat gctgtgaac tgaactctga caacagactt ctgaaataga 60
cccacaagag gcagttccat ttcatttgtg ccagaatgct ttaggatgta cagttatgga 120
ttgaaagttt acaggaaaaa aaattaggcc gttccttcaa agcaaagtgc ttctggatt 180
attcaaaatg atgtatgttg aagcctttgt aaattgtcag atgctgtgca aatgttatta 240
ttttaaacat tatgatgtgt gaaaactggg taatatttat aggtcacttt gttttactgt 300
cttaagttta tactcttata gacaacatgg ccgtgaactt tatgctgtaa ataatcagag 360
gggaataaac tggtgagtca aaacagccat ctctctgtg accaaacatt taaaaatatt 420
ctggctgggc acagtggctc acgcctgtaa tcccagcact ttgggaggcc gaggtgggca 480
gatcacctga ggttggg 497
```

<210> 25

<211> 460

<212> DNA

<213> Homo sapiens

<400> 25

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tgacaacaga cttctgaaat agaccacaaa gaggcagttc catttcattt gtgccagaat 60
gcttttaggat gtacagttat ggattgaaag tttacaggaa aaaaaattag gccgttcctt 120
caaagcaaat gtcttcctgg attattcaaa atgatgtatg ttgaagcctt tgtaaatgtt 180
cagatgctgt gcaaagtgtt ttattttaaa cattatgatg tgtgaaaact ggттаатatt 240
tataggtcac tttgttttac tgtcttaagt ttatactctt atagacaaca tggccgtgaa 300
ctttatgctg taaataatca gaggggaata aactgttgag tcaaaacagc catcttcctt 360
gtgaccaaac atttaaaaat attctggctg ggcacagtgg ctcacgcctg таатccсagc 420
actttgggag gccgaggtgg gcagatcacc tgaggttggg 460
```

<210> 26

<211> 462

<212> DNA

<213> Homo sapiens

<400> 26

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tctgacaaca gacttctgaa atagaccac aagaggcagt tccatttcat ttgtgccaga 60
atgctttagg atgtacagtt atggattgaa agtttacagg aaaaaaatt aggccgttcc 120
ttcaaagcaa atgtcttcct ggattattca aaatgatgta tgttgaagcc tttgtaaatt 180
gtcagatgct gtgcaaagt tattatttta aacattatga tgtgtgaaaa ctggttaata 240
tttataggtc actttgtttt actgtcttaa gtttatactc ttatagacaa catggccgtg 300
aactttatgc tgtaataaat cagaggggaa taaactgttg agtcaaaaca gccatcttcc 360
ttgtgaccaa acatttaaaa atattctggc tgggcacagt ggctcacgcc tgtaatccca 420
gcactttggg aggccgaggt gggcagatca cctgaggttg gg 462
```

<210> 27

<211> 459

<212> DNA

<213> Homo sapiens

<400> 27

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gacaacagac ttctgaaata gaccacaaag aggcagttcc atttcatttg tgccagaatg 60
ctttaggatg tacagttatg gattgaaagt ttacaggaaa aaaaattagg ccgttccttc 120
aaagcaaatg tcttcctgga ttattcaaaa tgatgtatgt tgaagccttt gttaaattgtc 180
agatgctgtg caaatgttat tattttaaac attatgatgt gtgaaaactg gttaatattt 240
ataggtcact ttgttttact gtcttaagtt tatactctta tagacaacat ggccgtgaac 300
tttatgctgt aaataatcag aggggaataa actgttgagt caaaacagcc atcttccttg 360
tgaccaaaac tttaaaaata ttctggctgg gcacagtggc tcacgcctgt aatcccagca 420
ctttgggagg ccgaggtggg cagatcacct gaggttggg 459
```

<210> 28

<211> 467

<212> DNA

<213> Homo sapiens

<400> 28

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tgaactctga caacagactt ctgaaataga cccacaagag gcagttccat ttcatttgtg 60
ccagaatgct ttaggatgta cagttatgga ttgaaagttt acaggaaaaa aaattaggcc 120
gttccttcaa agcaaatgtc ttcttgatt attcaaaatg atgtatgttg aagcctttgt 180
aaattgtcag atgctgtgca aatgttatta ttttaaacat tatgatgtgt gaaaactggт 240
taatatttat aggtcacttt gttttactgt cttaagttta tactcttata gacaacatgg 300
ccgtgaactt tatgctgtaa ataatcagag ggggaataaac tgttgagtca aaacagccat 360
cttccttgtg accaaacatt taaaaatatt ctggctgggc acagtggctc acgcctgtaa 420
tcccagcact ttgggaggcc gaggtgggca gatcacctga ggтtggg 467
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<210> 29
<211> 467
<212> DNA
<213> Homo sapiens

<400> 29
tgaactctga caacagactt ctgaaataga ccacaagag gcagttccat ttcattttgtg 60
ccagaatgct ttaggatgta cagttatgga ttgaaagttt acaggaaaaa aaattaggcc 120
gttccttcaa agcaaatgtc ttcttgatt attcaaaatg atgtatgttg aagcctttgt 180
aaattgtcag atgctgtgca aatgttatta ttttaaacaat tatgatgtgt gaaaactggg 240
taatatttat agrtcacttt gttttactgt cttaagttaa tactcttata gacaacatgg 300
ccgtgaactt tatgctgtaa ataatcagag gggaataaac tgttgagtca aaacagccat 360
cttccttgtg accaaacatt taaaaatatt ctggctgggc acagtggctc acgcctgtaa 420
tcccagcact ttgggaggcc gaggtgggca gatcacctga ggttggg 467

<210> 30
<211> 466
<212> DNA
<213> Homo sapiens

<400> 30
gaactatgac aacagacttc tgaaatagac ccacaagagg cagttccatt tcattttgtgc 60
cagaatgctt taggatgtac agttatggat tgaaagttaa caggaaaaaa aattaggccg 120
ttccttcaaa gcaaatgtct tcctggatta ttcaaaatga tgtatgttga agcctttgta 180
aattgtcaga tgctgtgcaa atgttattat tttaaacatt atgatgtgtg aaaactgggt 240
aatattttata grtcactttg ttttactgtc ttaagtttat actcttatag acaacatggc 300
cgtgaacttt atgctgtaaa taatcagagg ggaataaaact gttgagtcaa aacagccatc 360
ttccttgtga ccaaacattt aaaaatattc tggctgggca cagtggctca cgctgtaat 420
cccagcactt tgggaggccg aggtgggcag atcacctgag gttggg 466

<210> 31
<211> 466
<212> DNA
<213> Homo sapiens

<400> 31
gaactctgac aacagacttc tgaaatagac ccacaagagg cagttccatt tcattttgtgc 60
cagaatgctt taggatgtac agttatggat tgaaagttaa caggaaaaaa aattaggccg 120
ttccttcaaa gcaaatgtct tcctggatta ttcaaaatga tgtatgttga agcctttgta 180
aattgtcaga tgctgtgcaa atgttattat tttaaacatt atgatgtgtg aaaactgggt 240
aatattttata grtcactttg ttttactgtc ttaagtttat actcttatag acaacatggc 300
cgtgaacttt atgctgtaaa taatcagagg ggaataaaact gttgagtcaa aacagccatc 360
ttccttgtga ccaaacattt aaaaatattc tggctgggca cagtggctca cgctgtaat 420
cccagcactt tgggaggccg aggtgggcag atcacctgag gttggg 466

<210> 32
<211> 460
<212> DNA
<213> Homo sapiens

<400> 32
tgacaacaga cttctgaaat agaccacaa gaggcagttc catttcattt gtgccagaat 60

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gcttttaggat gtacagttat ggattgaaag tttacaggaa aaaaaattag gccgttcctt 120
caaagcaaat gtcttcctgg attattcaaa atgatgtatg ttgaagcctt tgtaaatgtt 180
cagatgctgt gcaaagtta ttattttaaa cattatgatg tgtgaaaact ggtaaatatt 240
tatagrtcac tttgttttac tgtcttaagt ttatactctt atagacaaca tggccgtgaa 300
ctttatgctg taaataatca gaggggaata aactgttgag tcaaaacagc catcttcctt 360
gtgaccaaac atttaaaaat attctggctg ggcacagtgg ctacgcctg taatcccagc 420
actttgggag gccgaggtgg gcagatcacc tgaggttggg 460

```

<210> 33

<211> 467

<212> DNA

<213> Homo sapiens

<400> 33

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tgaactctga caacagactt ctgaaataga ccacaaagag gcagttccat ttcattttgtg 60
ccagaatgct ttaggatgta cagttatgga ttgaaagttt acaggaaaaa aaattaggcc 120
gttccttcaa agcaaatgtc ttcttgatt attcaaaatg atgtatgttg aagcctttgt 180
aaattgtcag atgctgtgca aatgttatta ttttaaacad tatgatgtgt gaaaactggg 240
taatatattat aggtcacttt gttttactgt cttaagttta tactcttata gacaacatgg 300
ccgtgaactt tatgctgtaa ataactagag ggggaataaac tgttgagtca aaacagccat 360
cttccttgtg accaaacatt taaaaatatt ctggctgggc acagtggctc acgcctgtaa 420
tcccagcact ttgggaggcc gaggtgggca gatcacctga ggttggg 467

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<210> 34

<211> 460

<212> DNA

<213> Homo sapiens

<400> 34

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tgacaacaga cttctgaaat agaccacaa gaggcagttc catttcattt gtgccagaat 60
gcttttaggat gtacagttat ggattgaaag tttacaggaa aaaaaattag gccgttcctt 120
caaagcaaat gtcttcctgg attattcaaa atgatgtatg ttgaagcctt tgtaaatgtt 180
cagatgctgt gcaaagtta ttattttaaa cattatgatg tgtgaaaact ggtaaatatt 240
tatagatcac tttgttttac tgtcttaagt ttatactctt atagacaaca tggccgtgaa 300
ctttatgctg taaataatca gaggggaata aactgttgag tcaaaacagc catcttcctt 360
gtgaccaaac atttaaaaat attctggctg ggcacagtgg ctacgcctg taatcccagc 420
actttgggag gccgaggtgg gcagatcacc tgaggttggg 460

```

<210> 35

<211> 462

<212> DNA

<213> Homo sapiens

<400> 35

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tctgacaaca gacttctgaa atagaccac aagaggcagt tccatttcat ttgtgccaga 60
atgctttagg atgtacagtt atggattgaa agtttacagg aaaaaaatt aggccgttcc 120
ttcaaagcaa atgtcttcct ggattattca aaatgatgta tgttgaaagg tttgtaaatt 180
gtcagatgct gtgcaaatgt tattatttta aacattatga tgtgtgaaaa ctgggttaata 240
tttatagatc actttgtttt actgtcttaa gtttatactc ttatagacaa catggccgtg 300
aactttatgc tgtaataaat cagaggggaa taaactgttg agtcaaaaaca gccatcttcc 360
ttgtgaccaa acatttataa atattctggc tgggcacagt ggctcacgcc tgtaatccca 420
gcactttggg aggccgaggt gggcagatca cctgaggttg gg 462

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<210> 36
 <211> 463
 <212> DNA
 <213> Homo sapiens

<400> 36
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 aatgcttttag gatgtacagt tatggattga aagttttacag gaaaaaaaaat tagggccgttc 120
 cttcaaagca aatgtcttcc tggattattc aaaatgatgt atgttgaagc ctttgtaaata 180
 tgtcagatgc tgtgcaaatag ttattatttt aaacattatg atgtgtgaaa actgggtaata 240
 atttatagrt cactttgttt tactgtctta agttttatact cttatagaca acatggccgt 300
 gaactttatg ctgtaaataa tcagagggga ataaactgtt gagtcaaaac agccatcttc 360
 cttgtgacca aacattttaa aatattctgg ctgggcacag tggctcacgc ctgtaatccc 420
 agcactttgg gaggccgagg tgggcagatc acctgaggtt ggg 463

<210> 37
 <211> 17
 <212> DNA
 <213> Homo sapiens

<400> 37
 ggtggctggg ctcttct 17

<210> 38
 <211> 24
 <212> DNA
 <213> Homo sapiens

<400> 38
 ctcgcttctc cagtacctat gatg 24

<210> 39
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 39
 ctggctgagt gccagacatc t 21

<210> 40
 <211> 17
 <212> DNA
 <213> Homo sapiens

<400> 40
 ggcgggatgg agtggaa 17

<210> 41
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 41

ccacctcaag ctctggatg c

21

<210> 42

<211> 23

<212> DNA

<213> Homo sapiens

<400> 42

gttgactctt ttggcctttt cag

23

<210> 43

<211> 23

<212> DNA

<213> Homo sapiens

<400> 43

ccttaccaga cttccaggat ggt

23

<210> 44

<211> 25

<212> DNA

<213> Homo sapiens

<400> 44

tgtccaataa ctgcatcacc tacct

25

<210> 45

<211> 13

<212> DNA

<213> Homo sapiens

<400> 45

catggctgga ccc

13

<210> 46

<211> 13

<212> DNA

<213> Homo sapiens

<400> 46

catggctgga tcc

13

<210> 47

<211> 13

<212> DNA

<213> Homo sapiens

<400> 47

tgctccggcg cca

13

<210> 48

<211> 14

<212> DNA

<213> Homo sapiens

<400> 48

ctgctctggc gccca

14

<210> 49

<211> 16

<212> DNA

<213> Homo sapiens

<400> 49

ctctgttgcc ccagaa

16

<210> 50

<211> 15

<212> DNA

<213> Homo sapiens

<400> 50

ctctgttgcg ccaga

15

<210> 51

<211> 15

<212> DNA

<213> Homo sapiens

<400> 51

ctttcaaggg cctgc

15

<210> 52

<211> 15

<212> DNA

<213> Homo sapiens

<400> 52

cctttcaagg ggcct

15

<210> 53

<211> 16

<212> DNA

<213> Homo sapiens

<400> 53

aagactcgag tgcct

16

<210> 54

<211> 16

<212> DNA

<213> Homo sapiens

<400> 54

agactcaagt gtcctc

16

<210> 55
<211> 533
<212> DNA
<213> Homo sapiens

<400> 55
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tggtggcagc ctcttcaaaa tgagccctgt cctgcctaag gctgaacttg ttttctggga 120
acaccatagg tcacctttat tctggcagag gagggagcat cagtgccttc caggatagac 180
ttttcccaag cctacttttg ccattgactt cttcccaaga ttcaatccca ggatgtacaa 240
ggacagcccc tcctccatag tatgggactg gcctctgctg atcctcccag gcttccgtgt 300
gggtcagtgg ggcccatgga tgtgcttgtt aactgagtgc cttttggtgg agaggcccgg 360
cctctcacia aagaccctt accactgctc tgatgaagag gactacacag aacacataat 420
tcaggaagca gctttcccca tgtctcgact catccatcca ggccattccc cgtctctggt 480
tcctcccctc ctctggact cctgcacacg ctcttctc tgaggctgaa att 533

<210> 56
<211> 497
<212> DNA
<213> Homo sapiens

<400> 56
gggccccaga ggctgggtga catgtgttgg cagcctcttc aaaatgagcc ctgtcctgcc 60
taaggctgaa cttgttttct gggaacacca taggtcacct ttattctggc agaggaggga 120
gcatcagtgc cctccaggat agacttttcc caagcctact tttgccattg acttcttccc 180
aagattcaat cccaggatgt acaaggacag cccctcctcc atagtatggg actggcctct 240
gctgatectc ccaggcttcc gtgtgggtca gtggggccca tggatgtgct tgttaactga 300
gtgccttttg gtggagaggg ccggcctctc acaaaagacc ccttaccact gctctgatga 360
agaggagtac acagaacaca taattcagga agcagctttc cccatgtctc gactcatcca 420
tccaggccat tccccgtctc tggttcctcc cctcctcctg gactcctgca cacgctcctt 480
cctctgagggc tgaaatt 497

<210> 57
<211> 497
<212> DNA
<213> Homo sapiens

<400> 57
gggccccaga ggctgggtga catgtgttgg aagcctcttc aaaatgagcc ctgtcctgcc 60
taaggctgaa cttgttttct gggaacacca taggtcacct ttattctggc agaggaggga 120
gcatcagtgc cctccaggat agacttttcc caagcctact tttgccattg acttcttccc 180
aagattcaat cccaggatgt acaaggacag cccctcctcc atagtatggg actggcctct 240
gctgatectc ccaggcttcc gtgtgggtca gtggggccca tggatgtgct tgttaactga 300
gtgccttttg gtggagaggg ccggcctctc acaaaagacc ccttaccact gctctgatga 360
agaggagtac acagaacaca taattcagga agcagctttc cccatgtctc gactcatcca 420
tccaggccat tccccgtctc tggttcctcc cctcctcctg gactcctgca cacgctcctt 480
cctctgagggc tgaaatt 497

<210> 58
<211> 497
<212> DNA
<213> Homo sapiens

<400> 58

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gggccccaga ggctgggtga catgtgttgg cagcctcttc aaaatgagcc ctgtcctgcc 60
taaggctgaa cttgttttct gggaacacca taggtcacct ttattctggc agaggaggga 120
gcatcagtgc cctccaggat agacttttcc caagcctact tttgccattg acttcttccc 180
aagattcaat cccaggatgt acaaggacag cccctcctcc atagtatggg actggcctct 240
gctgatcctc ccaggcttcc gtgtgggtca gtggggccca tggatgtgct tgttaactga 300
gtgccttttg gtggagaggg ccggcctctc acaaaagacc ccttaccact gctctgatga 360
agaggagtac acagaacaca taattcagga agcagctttc cccatgtctc gactcatcca 420
tccaggccat tccccgtctc tggttcctcc cctcctcctg gactcctgca cacgctcctt 480
cctctgaggg tgaaatt 497
```

<210> 59

<211> 483

<212> DNA

<213> Homo sapiens

<400> 59

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gggtgacatg tgttggcagc ctcttcaaaa tgagccctgt cctgcctaag gctgaacttg 60
ttttctggga acaccatagg tcacctttat tctggcagag gaggagcat cagtgcctc 120
caggatagac ttttcccaag cctacttttg ccattgactt cttcccaaga ttcaatccca 180
ggatgtacaa ggacagcccc tctccatag tatgggactg gcctctgctg atcctcccag 240
gcttccgtgt gggtcagtgg ggcccatgga tgtgcttggt aactgagtgc cttttggtgg 300
agaggcccg cctctcacia aagaccctt accactgctc tgatgaagag gagtacacag 360
aacacmtaat tcaggaagca gctttcccca tgtctcgact catccatcca ggccattccc 420
cgtctctggt tctccctc ctctggact cctgcacag ctcttctc tgaggctgaa 480
att 483
```

<210> 60

<211> 500

<212> DNA

<213> Homo sapiens

<400> 60

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tttgggcccc agaggctggg tgacatgtgt tggcagcctc ttcaaaatga gccctgtcct 60
gcctaaggct gaacttgttt tctgggaaca ccataggtca cttttattct ggcagaggag 120
ggagcatcag tgccctccag gatagacttt tcccaagcct acttttgcca ttgacttctt 180
cccaagattc aatcccagga tgtacaagga cagccctc tccatagtat gggactggcc 240
tctgctgac ctcccaggct tccgtgtggg tcagtggggc ccatggatgt gcttggttaac 300
tgagtgcctt ttggtggaga ggcccgccct ctcaaaaag accccttmcc actgctctga 360
tgaagaggag tacacagaac acataattca ggaagcagct ttccccatgt ctgactcat 420
ccatccaggc cattccccgt ctctggttcc tccctcctc ctggactcct gcacacgctc 480
cttctctga ggctgaaatt 500
```

<210> 61

<211> 499

<212> DNA

<213> Homo sapiens

<400> 61

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ttgggccccca gaggtgggt gacatgtgtt ggcagcctct tcaaaatgag ccctgtcctg 60
cctaaggctg aacttgttt ctgggaacac cataggtcac cttttattctg gcagaggagg 120
gagcatcagt gccctccagg atagactttt cccaagccta cttttgcat tgacttctt 180
ccaagattca atcccaggat gtacaaggac agccctcct ccatagtatg ggactggcct 240
```

```
ctgctgatcc tcccaggctt ccgtgtgggt cagtggggcc catggatgtg cttgttaact 300
gagtgccttt tgggtggagag gcccggcctc tcacaaaaga ccccttmcca ctgctctgat 360
gaagaggagt acacagaaca cataattcag gaagcagctt tccccatgtc tgcactcatc 420
catccaggcc attccccgtc tctggttctt cccctcctcc tggactcctg cacacgctcc 480
ttcctctgag gctgaaatt                                     499
```

<210> 62

<211> 498

<212> DNA

<213> Homo sapiens

<400> 62

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tgggccccag aggctgggtg acatgtgttg gcagcctctt caaaatgagc cctgtcctgc 60
ctaaggctga acttgttttc tgggaacacc ataggtcacc tttattctgg cagaggaggg 120
agcatcagtg cctccagga tagacttttc ccaagcctac ttttgccatt gacttcttcc 180
caagattcaa tcccaggatg tacaaggaca gccctcctc catagtatgg gactgggctc 240
tgctgacctt cccaggcttc cgtgtgggtc agtggggccc atggatgtgc ttgttaactg 300
agtgcctttt ggtggagagg cccggcctct cacaaaagac cccctmccac tgctctgatg 360
aagaggagta cacagaacac ataattcagg aagcagcttt ccccatgtct cgactcatcc 420
atccaggcca ttccccgtct ctggttcctc cctcctcctt ggactcctgc acacgctcct 480
tcctctgagg ctgaaatt                                     498
```

<210> 63

<211> 498

<212> DNA

<213> Homo sapiens

<400> 63

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agcatcagtg cctccagga tagacttttc ccaagcctac ttttgccatt gacttcttcc 180
caagattcaa tcccaggatg tacaaggaca gccctcctc catagtatgg gactggcctc 240
tgctgacctt cccaggcttc cgtgtgggtc agtggggccc atggatgtgc ttgttaactg 300
agtgcctttt ggtggagagg cccggcctct cacaaaagac cccctmccac tgctctgatg 360
aagaggagta cacagaacac ataattcagg aagcagcttt ccccatgtct cgactcatcc 420
atccaggcca ttccccgtct ctggttcctc cctcctcctt ggactcctgc acacgctcct 480
tcctctgagg ctgaaatt                                     498
```

<210> 64

<211> 498

<212> DNA

<213> Homo sapiens

<400> 64

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tgggccccag aggctgggtg acatgtgttg gcagcctctt caaaatgagc cctgtcctgc 60
ctaaggctga acttgttttc tgggaacacc ataggtcacc tttattctgg cagaggaggg 120
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